TEC

TEC Portable Printer

B-415 SERIES

Owner's Manual
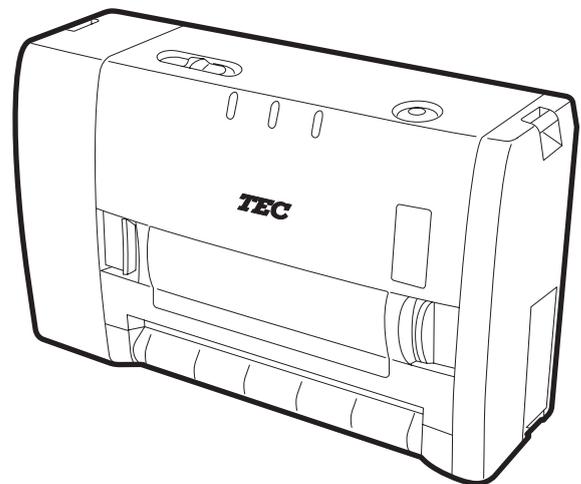
TOSHIBA TEC CORPORATION

CE Compliance (for EU only)

This product complies with the requirements of EMC, Low Voltage and R&TTE Directives including their amendments.

FCC Notice

This equipment has been tested and found to comply with the limits for a Class B digital device, in accordance to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

• Redirect or relocate the receiving antenna.
• Increase the separation between the equipment and receiver.
• Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
• Consult the dealer or an experienced radio/TV technician for help.

Changes or modifications not expressly approved by manufacturer for compliance could void the user's authority to operate the equipment.

CAUTION
To avoid injury, be careful not to catch or jam your fingers while opening or closing the cover.

CAUTION
Do not touch moving parts. To reduce the risk that fingers, jewelry, clothing, etc., be drawn into the moving parts, push the switch in the "O" position to stop movement.

"This Class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations."
"Cet appareil numérique de la classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada."

(for CANADA only)

IrCOMM (9-wire) is a trademark owned by Link Evolution Corporation and is used by TOSHIBA TEC under license.
IrDA Protocol Stack Deep Core™ © Link Evolution Corp. All Rights Reserved.

The B-415-GH25-QM is equipped with a wireless communication device, TEC-BTM. Please be sure to read the enclosed Precautions for Handling of Wireless Communication Devices before using this product.

VORSICHT:

Schallemission: unter 70dB (A) nach DIN 45635 (oder ISO 7779)
Die für das Gerät Vorgesehene Steckdose muß in der Nähe des Gerätes und leicht zugänglich sein.

■ For AU EMC

The B-415-GH25-QM is equipped with a wireless communication device, TEC-BTM. Please be sure to read the enclosed Precautions for Handling of Wireless Communication Devices before using this product.

Precautions for Handling of Wireless Communication Devices
Bluetooth® Module: TEC-BTM

Trade Mark

Bluetooth is a trademark owned by Bluetooth SIG, Inc. and used by TOSHIBA TEC CORPORATION under license from Japan Total Design Communication Co., Ltd.

The B-415-GH25-QM is equipped with a certified wireless communication module (TEC-BTM). The following cautions are applied to the certified wireless module.

Cautions

General

For all countries and areas

This product is a wireless communication device, and the use of this product is restricted to the following countries or areas. If the product is used in the countries or areas other than the following, you may be punished according to the laws of those countries or areas.

Japan, USA, Canada, Austria, Belgium, Denmark, Finland, France, Germany, Greece, Italy, Ireland, Luxembourg, Portugal, Spain, Sweden, The Netherlands, United Kingdom, Australia, New Zealand, Mexico, Switzerland, Norway, Iceland, Hungary, Liechtenstein

For Europe

$C\epsilon$ 0682 ①

Hereby, TOSHIBA TEC CORPORATION, declares that this TEC-BTM is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC.

This equipment uses a radio frequency band that has not been harmonised throughout all EU and EFTA countries, and can be used in the following countries.

Austria, Belgium, Denmark, Finland, France, Germany, Greece, Italy, Ireland, Luxembourg, Portugal, Spain, Sweden, The Netherlands, United Kingdom, Switzerland, Norway, Iceland, Hungary, Liechtenstein

For USA

This device complies with Part 15 of the FCC Rules.
Operation is subject to the following two conditions:
(1) this device may not cause harmful interference, and
(2) this device must accept any interference received, including
interference that may cause undesired operation.

Changes or modification not expressly approved by manufacturer for compliance could void the user's authority to operate the equipment.

For Canada

Operation is subject to the following two conditions:
(1) this device may not cause interference, and
(2) this device must accept any interference, including
interference that may cause undesired operation of the device.

To prevent radio interference to the licensed service, this device is intended to be operated indoors and away from windows to provide maximum shielding. Equipment that is installed outdoors is subject to licensing.

For safety

Do not use this product in locations where use may be forbidden, for example, in an aeroplane or a hospital. If you do not know the forbidden areas, please refer to and follow the airline company or medical institution guidelines.
Flight instrument or medical equipment may be affected, causing a serious accident.

Since this product uses extremely low power compared with mobile phones, it cannot possibly interfere the pacemakers and defibrillators. However, if the use
of this product should be likely to have affected the pacemaker or defibrillator, immediately stop using the product and contact your TOSHIBA TEC sales agent.

Do not disassemble, modify, or repair the product. Doing so may cause injury. Also, modification is against the Laws and Regulations for Radio Equipment. Please ask your TOSHIBA TEC sales agent for repair.

Precaution in use

This product communicates with other devices by radio. Depending on the installation location, orientation, environment, etc., its communication performance may deteriorate or devices installed near by may be affected.

Keep away from a microwave.
Communication performance may deteriorate or a communication error may occur due to the radio emitted from a microwave.

Keep away from wireless LAN.
The product and wireless LAN may interfere with each other, causing a deterioration of communication performance or a communication error.

Do not use the product on a metal table or near a metal object.
Communication performance may be deteriorated.

Specification

· Bluetooth class 2
· Built-in protocol stack activated by Bluetooth V1.1 serial port profile
· Operating temperature: -5 to 50°C 25% to 85%RH (No condensation)
· Dimensions: 38.1 mm (W) x 25.4 mm (H) x 7 mm (D)

Safety Summary

Personal safety in handling or maintaining the equipment is extremely important. Warnings and Cautions necessary for safe handling are included in this manual. All warnings and cautions contained in this manual and written inside or outside of the printer should be read and understood before handling or maintaining the equipment.

Do not attempt to effect repairs to this equipment. If a fault occurs that cannot be rectified using the procedures described in this manual, turn off the power, then contact your authorised TOSHIBA TEC representative for assistance.

Safety Precautions

This Owner's Manual and the products (machines) which you have purchased contain indications which should be observed in order to use the machines safely and prevent harm to yourself and others and damage to property. The meanings of these indications and symbols are given below.

Read these indications and become familiar with their contents before reading this Owner's Manual.

⚠ **WARNING** | This indicates that there is the risk of **death** or **serious injury** if the machines are improperly handled contrary to this indication.

- If water or any other liquid enters the machine, turn off the power. Continuous use of the machine under such conditions may cause fire or electric shock.
- If the equipment enclosed is damaged when dropped or subject to shock, turn off the power. Continuous use of the machine under such conditions may cause fire or electric shock.
- Avoid continuous exposure to direct sunlight or high temperature as this may cause fire.
- Do not remove covers or modify the machine by yourself. Doing so may cause fire or electric shock.
- Avoid water, operation with wet hands or cleaning with a moistened cloth. Failure to do this may cause fire or electric shock.
- Do not wipe the machine with a cloth moistened with thinner or other volatile solvent as this may cause fire or electric shock.
- Use the specified battery only. Failure to do this may cause fire or electric shock.
- Danger of explosion if the battery is incorrectly replaced. Replace the battery only with 'TOSHIBA TEC Corporation, Battery Pack Type B-415-BT, 7.2 V 3000 mAh Li-ion'.
  Discard used batteries according to the manufacturer's instruction.
- ATTENTION:
  Il ya denger d'explosion s'il ya remplacement incorrect de la batterrie.
  Remplacer uniquement avec une batterie du même type ou d'un type équivalent recommandé par le constructeur.
  Mettre au rebut les batteries usagées conformément aux instructions du fabricant.
- Do not disassemble and modify the battery because it has a protection unit in it. Doing so may break the protection unit, causing the battery to heat up, burst or burn.
- If the battery gets wet, dry it completely. Using a wet battery may cause fire or electric shock.
- Be aware of the following precautions when using batteries. Otherwise they could heat up, burst or burn.
  - ■ Do not throw the battery into fire or heat it with a microwave or oven, etc.
  - ■ Do not load the battery with the electrodes reversed.
  - ■ Do not connect the electrodes with metal objects like wire. Do not carry or store the battery along with metal objects such as necklaces, hairpins, etc.
  - ■ Do not stick a needle into, hammer, step on, or drop the battery.
  - ■ Do not solder the battery.
  - ■ Do not leave the battery where the temperature is more than 60° centigrade, such as inside a car or in direct sunlight.

| ⚠ **CAUTION** | This indicates that there is the risk of personal **Injury** or **damage** to objects if the machines are improperly handled contrary to this indication. |

- Keep away from flame or other sources of heat. Failure to do this may cause fire or machine failure.
- Do not drop or shock the machine as this may cause machine failure.
- During lightening, turn off and keep away from the machine because of danger of electric shock and machine failure.
- Avoid locations subject to rapid change in temperature as this causes condensation, causing electric shock or machine failure.
- Do not damage the print head, platen or strip roller with a sharp object. Doing so may cause machine failure.
- Do not touch or contact the print head element with a metal object. Doing so may cause machine failure.
- Use the specified media only. Failure to do this may cause machine failure.
- Be sure to turn off the machine before replacing the battery, or machine failure may occur.
- Do not charge the battery near flame or under direct sunlight. High temperature may activate or damage the protection unit of the battery, disabling the electric charge or causing it to overheat, burst, or burn.
- Unload the battery when the machine will not be used for a long time. Failure to do this may cause machine failure.
- Keep the battery away from flame, a heat source or other locations subject to high temperature. Failure to do this may cause it to over heat or burn.
- Use the specified battery charger only. Failure to do this may cause the battery to overheat, burst or burn.
- Do not force the battery into the machine or battery charger. Doing so may cause the battery to overheat, burst or burn. Check for the correct electrode.
- Do not connect the battery to a power outlet or a car cigarette lighter jack as this may cause the battery to overheat, burst or burn.
- Because the B-415-BT battery is exclusively for the B-415 printer, do not use the battery in other machines. Doing so may damage the battery or affect the performance and life of the battery.

Precautions

The following precautions will help to ensure that this machine will continue to function correctly.
(1) Try to avoid locations that have the following adverse conditions:
  - * Temperatures below -5°C and above 50°C
  - * Direct sunlight
  - * Excessive vibration
(2) The cover should be cleaned by wiping with a dry cloth or a cloth slightly dampened with a mild detergent solution. NEVER USE THINNER OR ANY OTHER VOLATILE SOLVENT on the plastic covers.
(3) USE ONLY TOSHIBA TEC SPECIFIED media.
(4) DO NOT STORE the consumables/media where they might be exposed to direct sunlight, high temperatures, high humidity, dust, or gas.
(5) Any data stored in the memory of the printer could be lost during a printer fault.
(6) DO NOT open the media or battery covers and battery cover during operation. Doing so will stop printer operation.
(7) DO NOT scratch the surface of printed labels or receipt with a sharp object.

NOTE:
When the printer is not used for a long period of time, please keep it with the media cover open. Failure to do this may deform the platen by the print head's pressure.

TABLE OF CONTENTS

1. INTRODUCTION

Thank you for purchasing the TEC B-415 series portable printer.

The B-415 printer displays its high performance with extraordinarily high speed printing up to 50.8 mm/ sec. It has a considerably compact and light body of 111 mm in height, 180 mm* in width and 57 mm in depth, weighing about 800 g. (*The width of the GH25 model is 170 mm.)

There are three models in the B-415 series depending on the wireless communicatio method: IrDA (for GH24 model), IrDA + Bluetooth (for GH25 model), and IrDA + minute radio (for GH34 model).
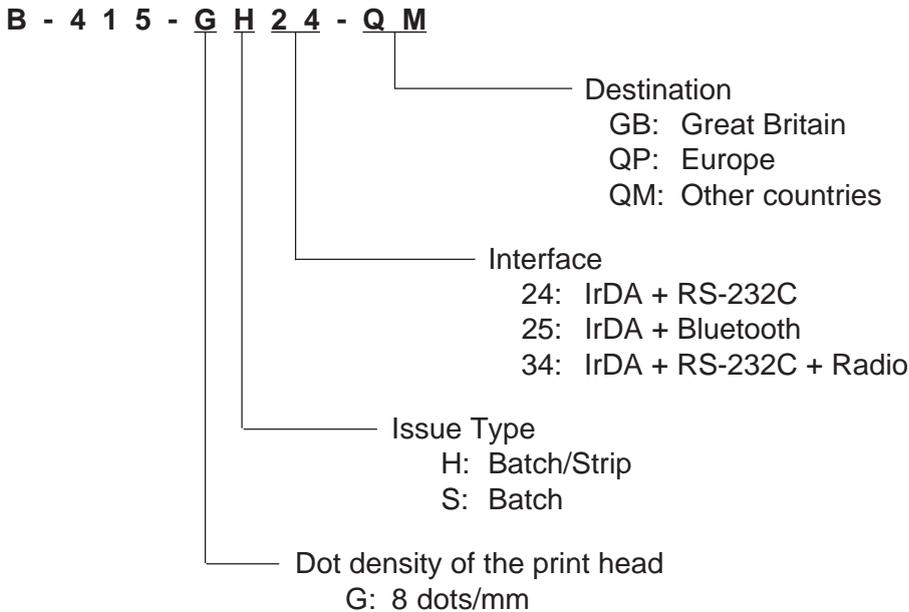
Owing to a low power consumption design and use of a chargeable lithium battery as a power source, this printer can issue 200 pieces of 63.5-mm pitch labels with a fully-charged battery.

Loading a label roll is very simple; just put a label roll into the printer and close the media cover.

This manual contains general set-up and maintenance information and should be read carefully to help gain maximum performance and life from your printer. For most queries please refer to this manual and keep it safe for future reference.

1.1 Applicable Model

- B-415 Series

Model name description

B - 4 1 5 - G H 2 4 - Q M

Destination
    GB: Great Britain
    QP: Europe
    QM: Other countries

Interface
    24: IrDA + RS-232C
    25: IrDA + Bluetooth
    34: IrDA + RS-232C + Radio

Issue Type
    H: Batch/Strip
    S: Batch
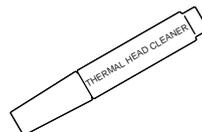
Dot density of the print head
    G: 8 dots/mm

NOTE: The B-415-GH34-GB model is for exclusive use in Great Britain.

1.2 Accessories
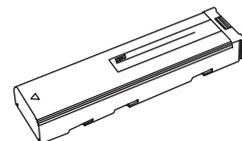
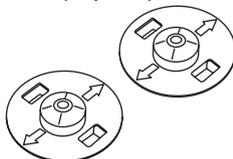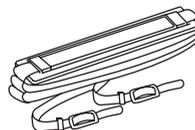Owner's Manual
(EO1-33014)

Print Head Cleaner
(24089500013)

Lithium ion Battery Pack

Linerless Adapter
(2 pcs.)

Shoulder Strap

2. SPECIFICATIONS

2.1 Printer

Item	Description
Dimensions	GH24/GH34 model: 180 mm (W) x 111 mm (H) x 57 mm (D)
	GH25 model: 170 mm (W) x 111 mm (H) x 57 mm (D)
Weight	Approximate 800 g (Including a battery)
Operating temperature	-5°C ~ 50°C
Operating humidity	25%~ 85% RH (No condensation)
Issue mode	Batch mode/Strip mode
Print head	Thermal print head
Print method	Thermal direct
Print head dot density	8 dots/mm (203 dpi)
Print speed	Max. 50.8 mm/sec.
Effective print width	Label: ~ 98.6 mm
	Receipt: ~ 101.6 mm
	Linerless Label: ~ 91.6 mm
Fonts	Standard characters and characters under barcodes (1 size), Bold character (1 size), Price font (2 sizes), Times Roman medium (6 sizes), Helvetica (6 sizes), Presentation (1 size), Letter Gothic (1 size), Prestige Elite (2 sizes), Courier (2 sizes), OCR (2 types), Gothic725 Black: 6 point, Writable characters (2 sizes), TEC font (2 types), Dutch801 bold, Brush738 regular, Gothic725 black
Bar code types	JAN8, JAN13, EAN8, EAN13, UPC-A, UPC-E, CODABAR (NW7), CODE39, CODE128, EAN128, Interleave 2 of 5, MSI, Data Matrix, PDF417, Maxi Code, QR Code, Micro PDF417, Customer Barcode, Prior Customer Barcode
Interface	GH24 model: IrDA + RS-232C
	GH25 model: IrDA + Bluetooth
	GH34 model: IrDA + RS-232C + Radio
Power source	Lithium ion battery 7.2V
	3000mAh (official)

* *Data Matrix^{TM} is a trademark of International Data Matrix, Inc.*
  PDF417 is a trademark of Symbol Technologies, Inc.
  QR code is a trademark of DENSO CORPORATION.
  Maxi code is a trademark of United Parcel Service of America, Inc.

2.2 IrDA Interface

Item	Description
Type	Physical layer conforming to IrDA-SIR V1.0
Transmission speed	19200 bps
	9600 bps (for IrCOMM only)
Communicable distance	0.3 m max.
Peak wavelength of the infrared ray	850 to 900 nm
Communicable angle	±15° degrees max.
Ambient light immunity	1000 lx max. (under a fluorescent lamp or incandescent lamp)
Intensity of emission	Min. 36mW/SR (θh, θv $\leq$ ±15°)
Receivable infrared ray	Min. 7µW/cm^2 (θh, θv $\leq$ ±15°)
Protocol	Start-stop synchronization, Half duplex transmission
	Start bit = 1 bit, Stop bit = 1 bit, 8 bit data, Non parity
Data code	JIS 8 code, Packed BCD code, Shift JIS code
Error detection	CRC (16 bits),
	Generating polynomical $X^{16}+X^{12}+X^5+1$
Transmission protocol	TEC Protocol, IrCOMM (9-WIRE)

2.3 Serial Interface (RS-232C) (for GH24 and GH34 models)

Item	Description
Baud rate	9600 bps
Protocol	XON/XOFF, 8 bit data, Even parity, Stop bit = 1 bit
Signals	TXD, RXD, RTS, CTS

NOTE: *This printer requires an exclusive printer cable. When purchasing it, please contact your authorized TOSHIBA TEC representative.*

2.4 Radio Interface (for GH34 model)

The following specification is applicable only to the GB and QP models.

Item	Description
Type	FM superhet UHF radio telemetry receiver (Complies with MPT1340*, ETS300-220**)
Receiving frequency	418 MHz*, 433 MHz**
Communication method	Unidirectional (Receive only)
Transmission speed	4800 bps
Protocol	8 bit data, non parity, stop bit = 1 bit
Communicating distance	3 m

*: GB model

**: QP model

NOTE: *The RS-232C interface cable must be disconnected when using the radio communication.*

2.5 Bluetooth Interface (for GH25 model)

Item	Description
Communication method	Bluetooth V1.1 (with logo certification)
Supported profile	Serial port profile
Communication class	Class 2
Communication distance	3m/360 degrees
Service name	ZV-AT
Device nickname	TOSHIBA TEC BT
Flow control	Credit based flow control
Operation mode	Slave mode
PIN code	Not used.
Receive buffer	2 K bytes
Link break time out	20 sec.
Inquiry control	No response to any inquiry can be made in 1 minute after the power is turned ON.
SR mode at page/inquiry scanning	R1 scan interval 1.28 sec.
	Scan window 22.5 msec.

2.6 External DC Input

Item	Description
Conditions	Input voltage: DC9V ± 5%
	Input current: Max. 8A
Connector specification	Printer side: TCP7361-11-0201
	Adapter side: TCS7361-01
Connector pin arrangement	Pin1: DC9V, Pin2: GND, Pin3: NC

## 2.7 Battery

Item	Description
Battery	Lithium ion battery pack 7.2 VDC, 3000 mAh (Official capacity)
Charge method	Battery charger
Charge current	1.0 A
Standard charge voltage	8.5 V ± 0.1 V
Charge time	Approx. 4.0 hours
Battery capacity	A fully charged battery allows the printer to print about 200 labels
	Under the temperature 25°C, it can print 400 to 500 labels.
	(Label pitch: 63.5 mm)
Current consumption	3.0 A (when printing bar codes)
Charge and discharge cycle	300 cycles
Protection circuit	Overcharge protection circuit (Max. 8.5V)

2.8 Option

Option Name	Type	Description
Battery Pack	B-415-BT	Lithium ion battery pack
		7.2VDC, 3000mAh (Official capacity)
Battery Charger	B-415-CHG	A charger which is exclusive for the B-415-BT battery pack
		AC 100V to 240V, Charge time: Approx. 4hours

NOTE: *To purchase the OPTIONAL KIT, please contact your authorized TOSHIBA TEC representative or TOSHIBA TEC Head Quarter.*

2.9 Media

Label

Receipt/Linerless

Feed direction

Feed direction

Black Mark (on reverse side)
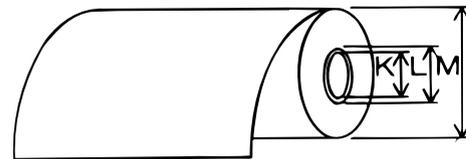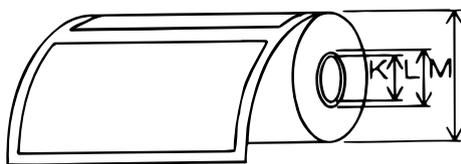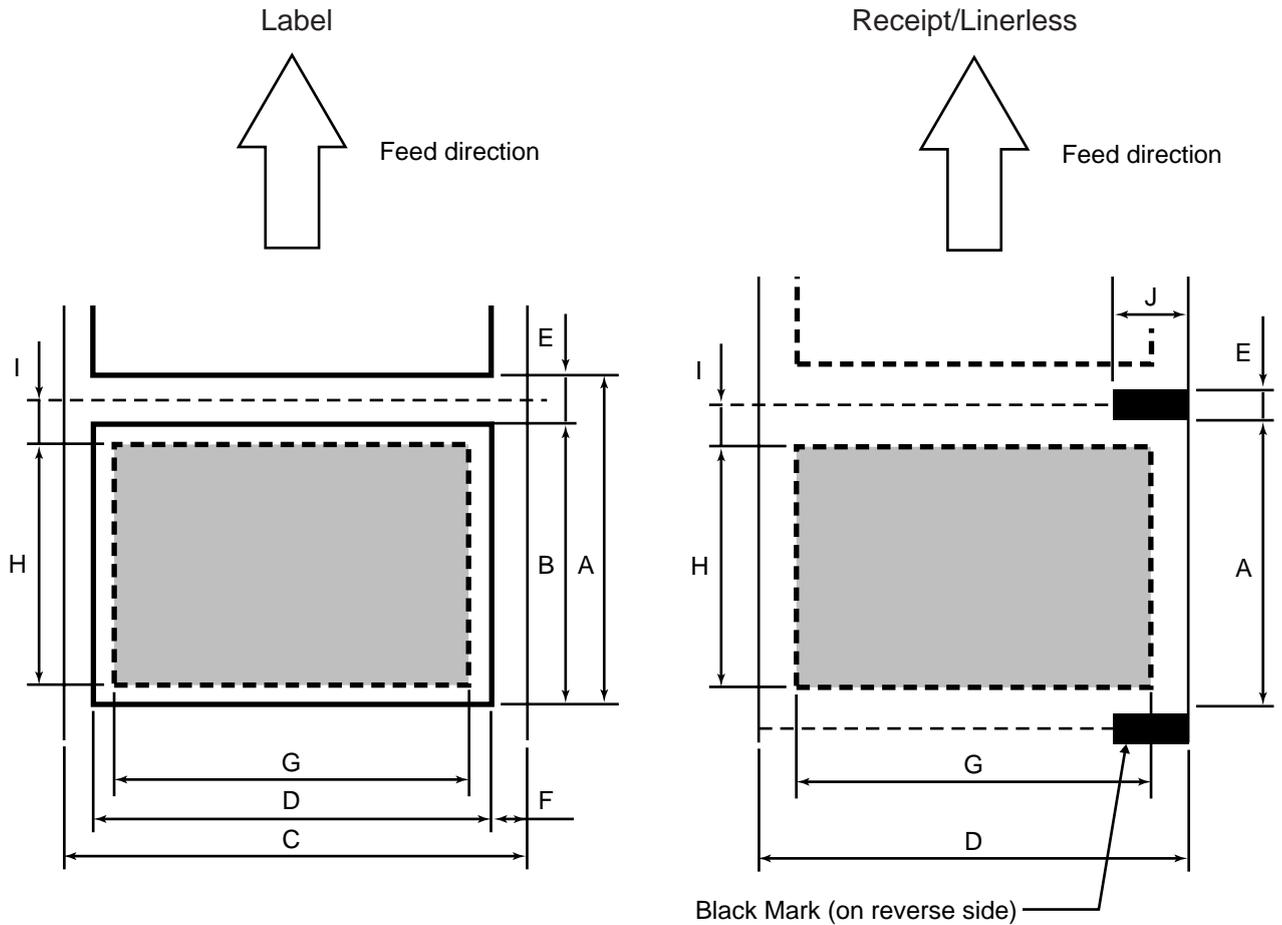
(Unit : mm)

Media type	Label		Receipt		Linerless
Item	Batch	Strip	Without black mark	With black mark	With black mark
A: Label/Receipt Pitch	10 ~ 400	13 ~ 71.5	---	10 ~ 400	10 ~ 400
B: Label/Receipt length	7 ~ 390	10 ~ 63.5	---	7 ~ 390	7 ~ 390
C: Width including backing paper	30 ~ 104.6 + 0/ -1		---		
D: Media width	27 ~ 101.6		30 ~ 104.6 + 0/ -1		30 ~ 94.6 + 0/ -1
E: Gap/Black mark length	3 ~ 8		---	3 ~ 8	
F: Backing paper end	1.5 ~ 7		---		
G: Effective print width	~ 98.6		~ 101.6		~ 91.6
H: Effective print length	7 ~ 390				
I: Non print area	6.4				
J: Black mark width	---			14	
K: Inner diameter of paper core	Ø 12.7 (Ø 0.5")				
L: Outer diameter of paper core	(Ø 16.7)				
M: Outer roll diameter (Max.)	Ø 42 + 0/ -1				

NOTE: *Do not use media other than the above to ensure print quality and print head life.*

3. APPEARANCE

3.1 Front/Rear View

Front View   **Rear View**

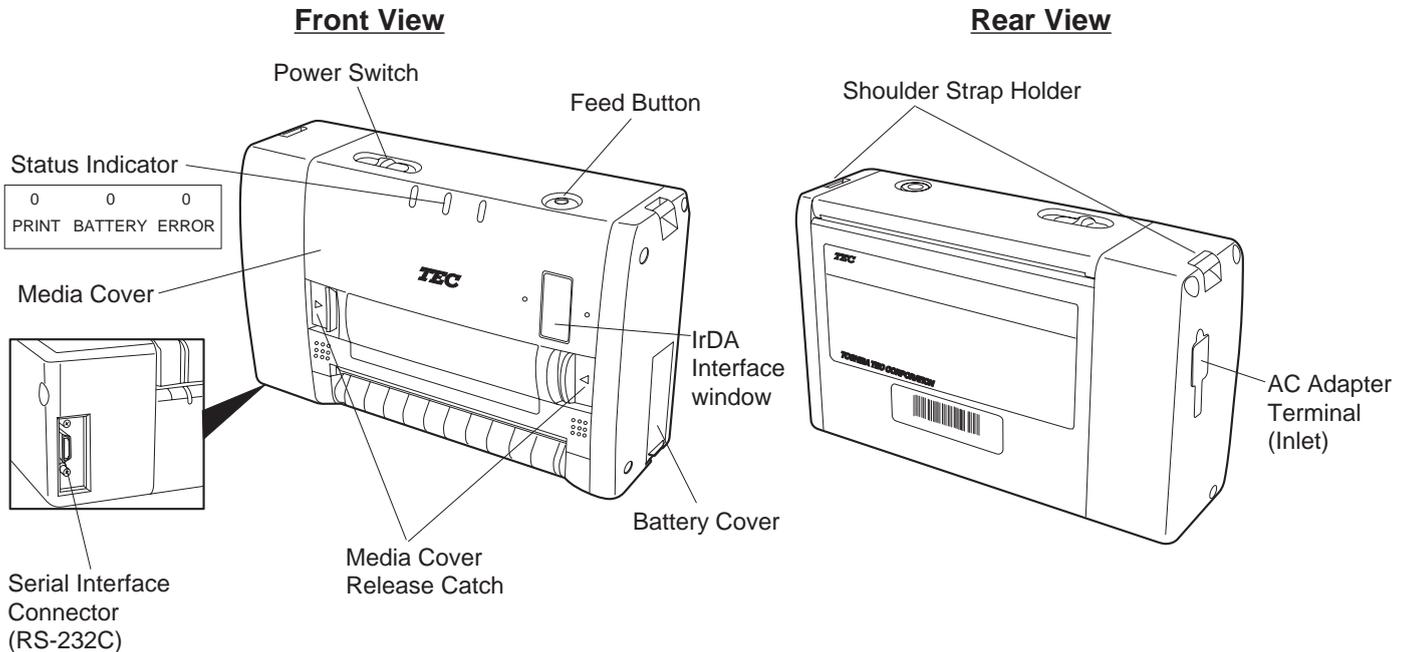
Fig. 3-1   Fig. 3-2

3.2 Description of LED Lamp

■ **PRINT LED (Green)**
Lights up for 2 or 3 seconds together with BATTERY and ERROR LEDs when the power is turned on.
Lights up during the data transmission and the printing.
Extinguishes when no printing is performed.

■ **BATTERY LED (Red)**
Extinguishes when the battery power is sufficient to perform printing.
Lights up when the battery power becomes insufficient to perform printing due to low-voltage.
(When this LED lights up, printing cannot be performed.)
Flashes for three seconds when the power is turned on to indicate that the battery has reached the end of its life. (Recommended that you should replace the battery with a new one.)

■ **ERROR LED (Red)**
Blinks when an error has occurred.

3.3 Description of Switch/Button

■ **POWER SWITCH**
A slide power switch.
Full appearance of the orange mark indicates power ON.
Fully hidden orange mark indicates power OFF.

■ **FEED BUTTON**
Each time this button is pressed, the printer re-issues the previous label. When the button is held, the printer issues labels continuously.

4. LOADING AND REMOVING THE BATTERY

> ***CAUTION:***
> *1. Be sure to turn off the printer before loading the battery.*
> *2. Use the specified battery only. Failure to do this may cause fire or electric shock.*
> *3. In the United States, used lithium ion batteries should be returned to the store where you bought the machine. (USA only)*
> *4. LITHIUM ION BATTERY*
> *DISPOSE OF PROPERLY*
> *Caution: Do not handle a damaged or leaking lithium ion battery.*

- **Battery Performance**
  A fully charged battery can print 200 labels or more. Under the temperature 25°C, it can print 400 to 500 labels. (Label pitch: 63.5 mm)

1. Slide the battery cover to open.
2. Insert the battery as shown below until it goes no further.
3. Slide the battery cover back while pushing the battery, and fully close the cover until it clicks.
4. To remove the battery, gently tilt the printer while supporting with the hand.
   NOTE: *Care must be taken to tilt the printer. Failure to do this may cause the battery to rush out.*
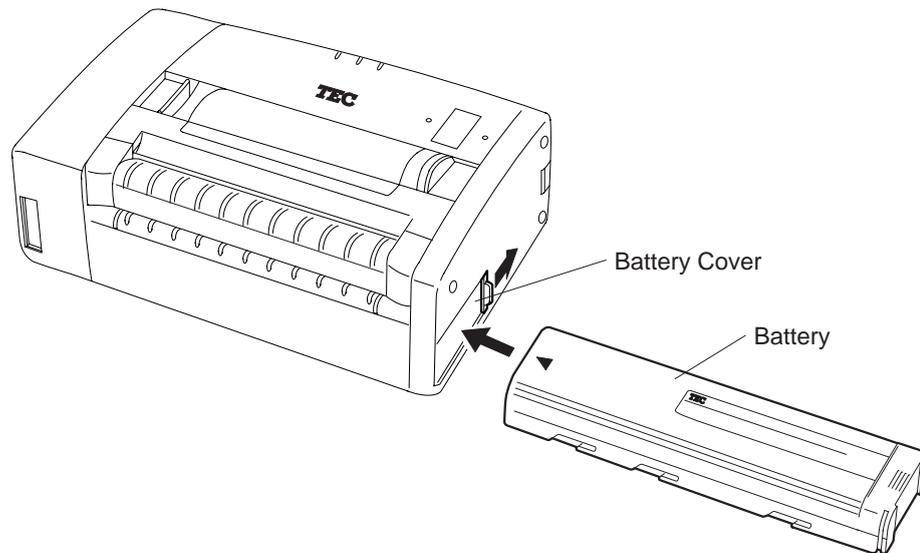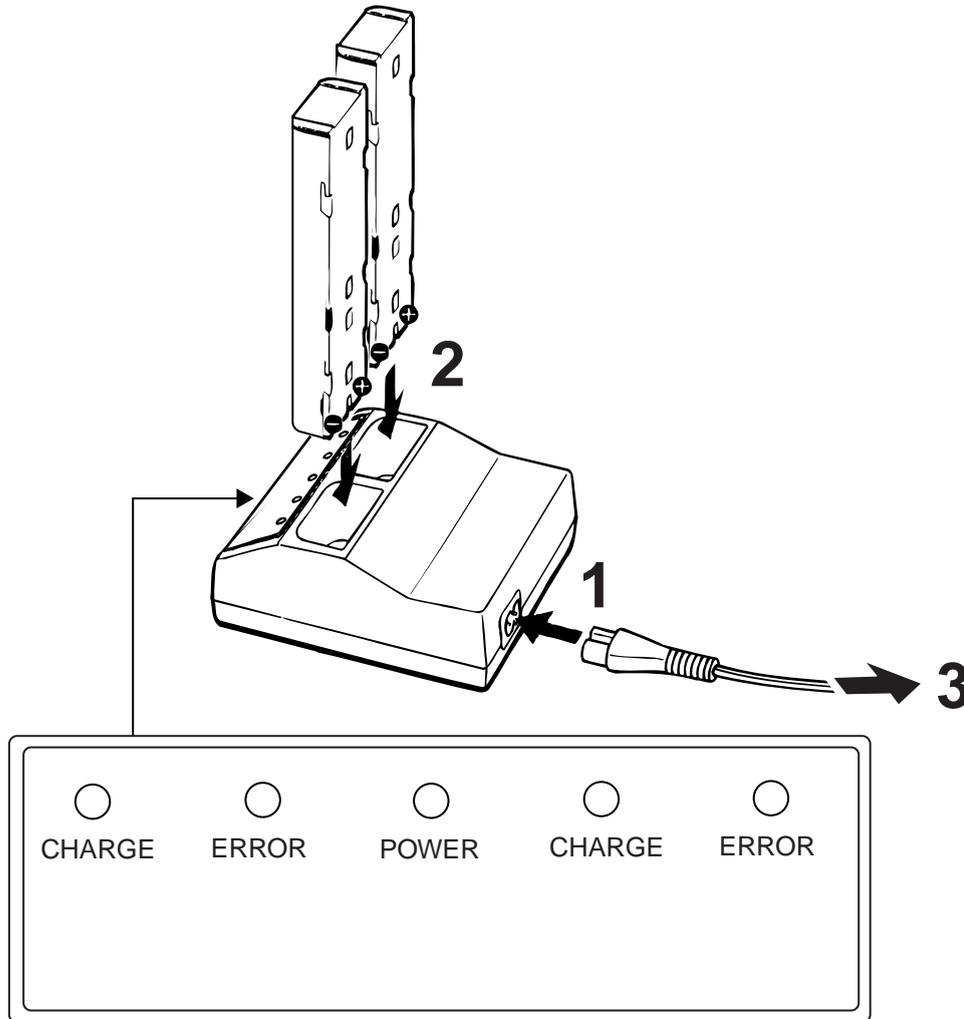

Battery Cover

Battery

Fig. 4-1

● **TO CHARGE THE BATTERY PACK**
This printer includes no battery charger. Charging the battery requires an exclusive battery charger. Please order the following one to your authorized TOSHIBA TEC representative if necessary.

Part Name	Lithium Ion Battery Charger
Description	B-415-CHG

CHARGE	ERROR	POWER	CHARGE	ERROR

1   Connect the AC power cord to the charger.

2   Install the battery pack(s).

3   Connect the AC plug to a wall outlet.
     The POWER lamp and the CHARGE lamp will light up and charging will begin. The CHARGE lamp indicates how much the battery pack is charged.

CHARGE lamp	Charged
Orange on	0% to 90%
Orange flash	91% to 99%
Green on	100%

NOTES: 1. *When a fully charged battery pack is installed, the CHARGE lamp will once light up orange then light up green.*

2. *Both of the battery charging receptacles are available, however, two of the battery packs cannot be charged at the same time.*

- **Charging time**

Battery pack	Charging time
B-415-BT	about 4 hours

The charging time may differ depending on the condition of the battery pack or the temperature of the environment.

- **Using the battery pack at once**

Remove the battery pack when required. It can be used even if the charging is not completed. Battery operating time, however, may differ depending on the charging time.

- **If the ERROR lamp flashes**

Check as follws:

1   Remove the battery pack from this unit, then install the same battery pack again.
2   If the ERROR lamp flashes again: Install another battery pack.
3   If the ERROR lamp flashes again: The problem is with this unit.

Please contact your Authorized TOSHIBA TEC representative in connection with the product with the problem.

5. ATTACHING THE SHOULDER STRAP

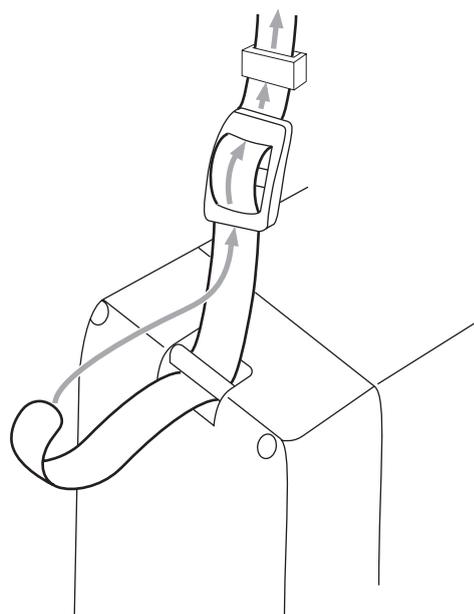Attach the provided shoulder strap to the shoulder strap holders as Fig.5-1 shows.

Fig. 5-1

6. SET UP PROCEDURE

6.1 Requirements for Operation

This machine has the following requirements:
- The host computer must have a serial port.
- To communicate with host, either an exclusive RS-232C cable is required.
  RS-232C cable   9 pins
- To print a label format, create the complete program using the interface/communication manual.

■   Interface Cables

NOTE: *This printer requires an exclusive printer cable, shielded, 1.5 m maximum length. When purchasing it, please contact your authorized TOSHIBA TEC representative.*

To prevent radiation and reception of electrical noise, the interface cables must meet the following requirements:
- Fully shielded and fitted with metal or metalised connector housings.
- Kept as short as possible.

■   RS-232C Cable description
The serial data cable used to connect the printer to the host computer should be the following type:
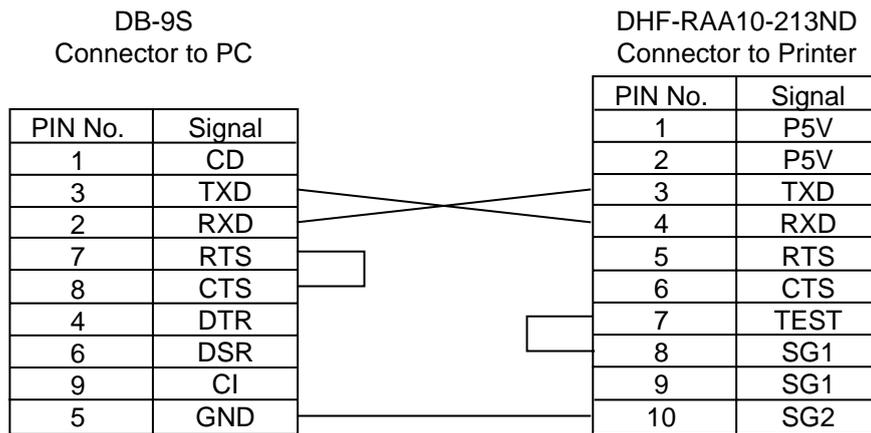
DB-9S
Connector to PC

PIN No.	Signal
1	CD
3	TXD
2	RXD
7	RTS
8	CTS
4	DTR
6	DSR
9	CI
5	GND

DHF-RAA10-213ND
Connector to Printer

PIN No.	Signal
1	P5V
2	P5V
3	TXD
4	RXD
5	RTS
6	CTS
7	TEST
8	SG1
9	SG1
10	SG2

Fig. 6-1

7. LOADING THE LABEL

> **NOTES:**
> 1. *In the strip issue mode, you should use the printer with the side in which the model name sticker is attached downward because the backing paper is issued from the bottom of the printer.*
> 2. *In the strip issue mode, you can tear off the backing paper using the edge of the strip cover.*
> 3. *In the batch issue mode, you can tear off the backing paper at the perforation.*

7.1 How to Load the Liner Backed Label Roll

1. Place the printer on a level surface as shown below.
2. To unlock the media cover, press the two cover release catches in the direction of the arrows.
3. Open the media cover by pushing up the strip cover.
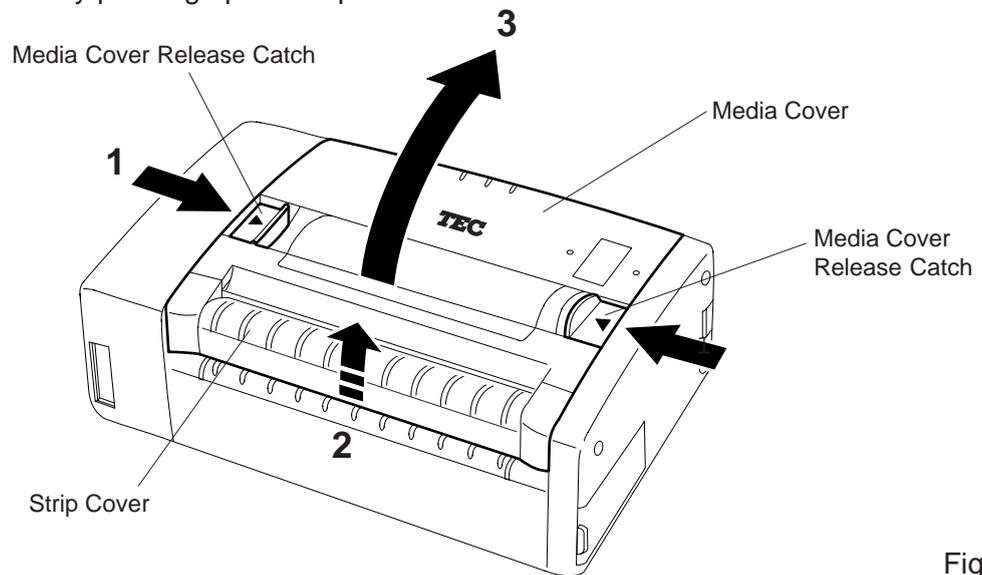

Fig. 7-1

4. Fully raise up the release lever, and then slide the paper guide (R) to the right.
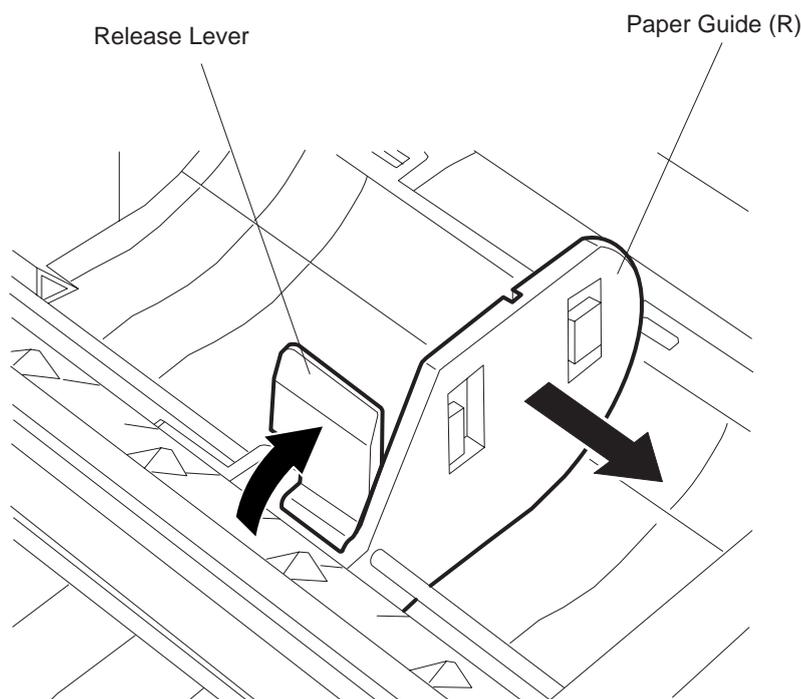

Fig. 7-2

5. Load the liner backed label roll as Fig.7-3 shows.
6. Slide the paper guide (R) to accommodate the label roll width, and then push the release lever downward to fix the paper guide (R).

NOTE: Before fixing the paper guide (R), make sure that the label roll rotates smoothly without moving from side to side.

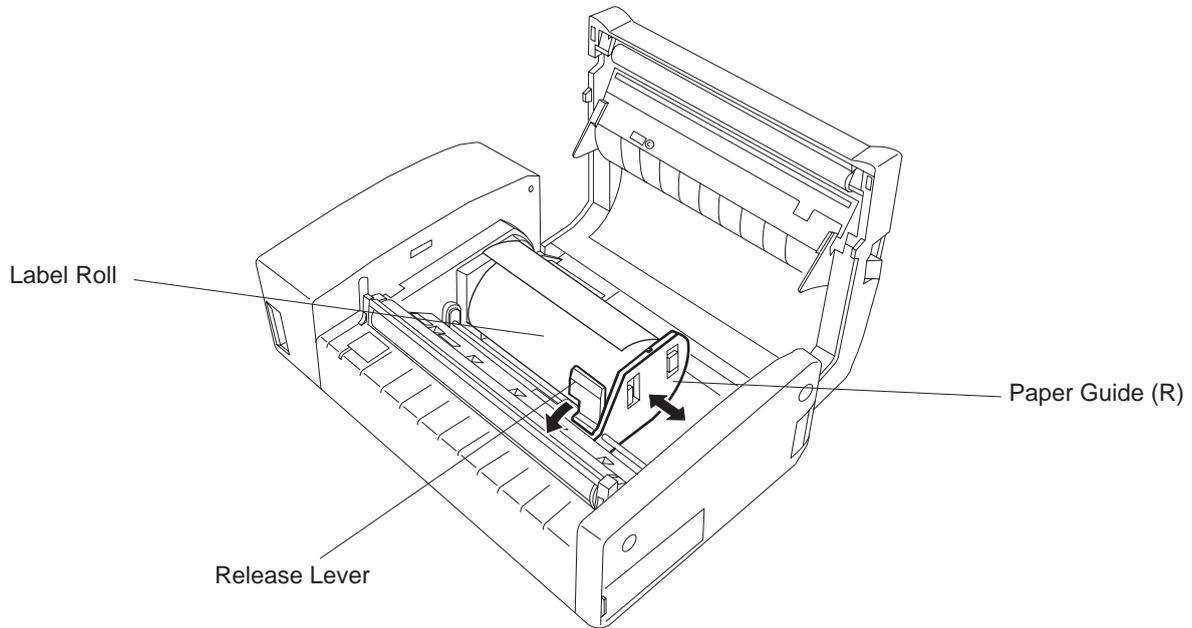Label Roll

Paper Guide (R)

Release Lever

Fig. 7-3

7. When printing in strip issue mode, draw out the top of the label roll onto the platen. When printing in continuous or batch issue mode, insert the top of the label roll into the outlet of the media cover.

NOTE: Batch issue can be performed without the strip module. For removing the strip module, refer to section 7.2 How to load the linerless label roll.
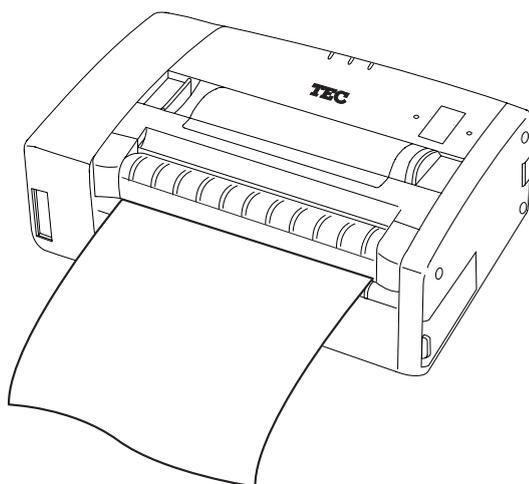
Strip Issue   **Batch Issue**

Strip Module

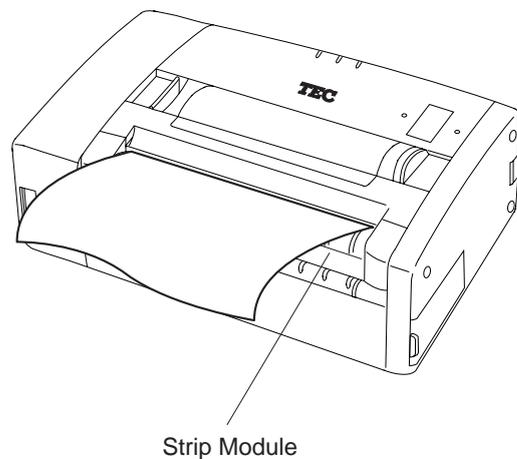Fig. 7-4   Fig. 7-5

8. Push down the media cover until the two cover release catches click back into the lock position.

NOTE: *If the media cover is open and unlocked, an error will result and the printing will not be performed.*
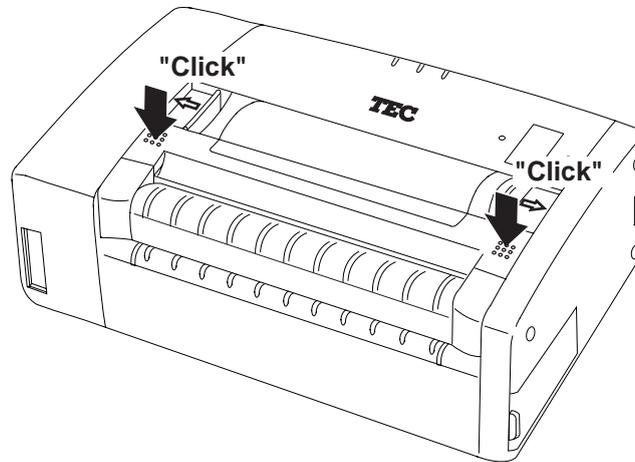

Fig. 7-6

9. When printing in strip issue mode, pull out the top of the liner of the label roll to eliminate slack.

[How to remove the liner backed label roll]
1. Open the media cover.
2. Fully raise up the release lever, slide the paper guide (R) to the right, and then remove the liner backed label roll.

7.2 How to Load the Linerless Label Roll

1. Open the media cover.
2. To remove the strip module from the media cover, press the claws provided for the strip module.
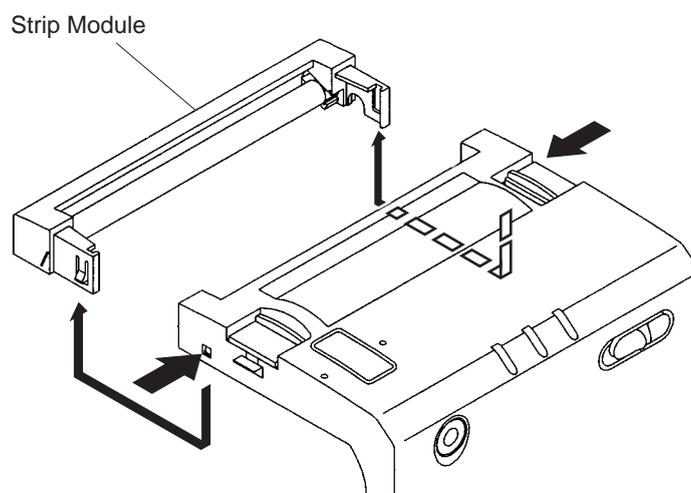

Fig. 7-7

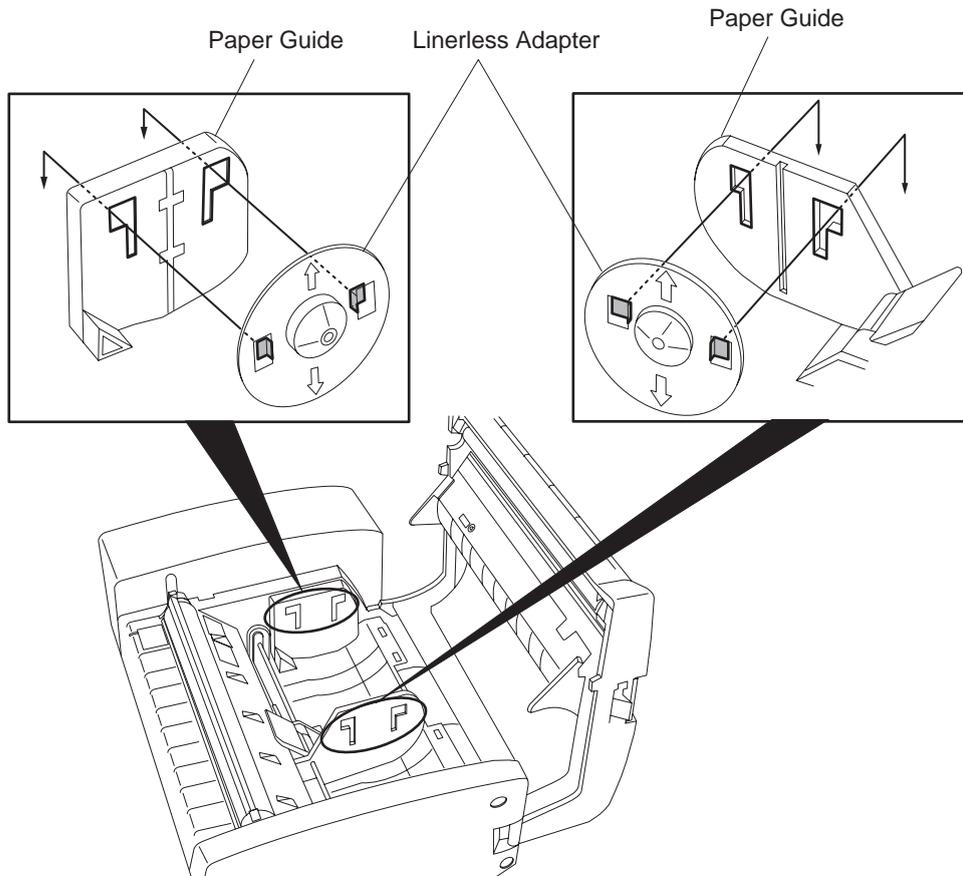3. Attach the linerless adapters to the paper guides.

Fig. 7-8

4. Loading the linerless label roll is basically the same as described in the liner backed label roll. However in the case of the linerless label roll, its width may exceed the specified range (104.6 mm, +0/-0.5) due to having been rolled unevenly. In this case, use your finger to press against the paper holder spring, which allows you to install the linerless label roll between both paper holders.
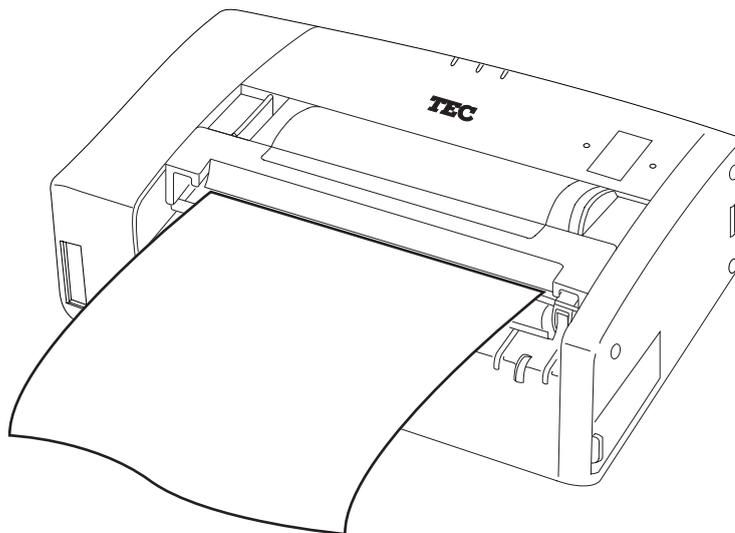

Fig. 7-9

[How to remove the linerless label roll]
Remove the linerless label roll in the same way as the liner backed label roll.

8. ISSUING THE MEDIA

> **CAUTIONS:**
> 1. Radio communication between a handy terminal and the B-415 printer is guaranteed when the handy terminal is in the operator's hand and the printer is secured at the waist. Proper radio communication may not be obtained when used in other conditions and in areas subject to noise and radio interference.
> 2. Be sure to disconnect the RS-232C interface cable from the printer before performing radio communication or IrDA.
> 3. To perform the radio communication or IrDA, the printer must be synchronized with the handy terminal.
> 4. IrDA is available on the conditions indicated below. The following performance is obtained under fluorescent light (max. 1000 lx). Care must be taken to prevent direct sunlight from entering the IrDA interface window.
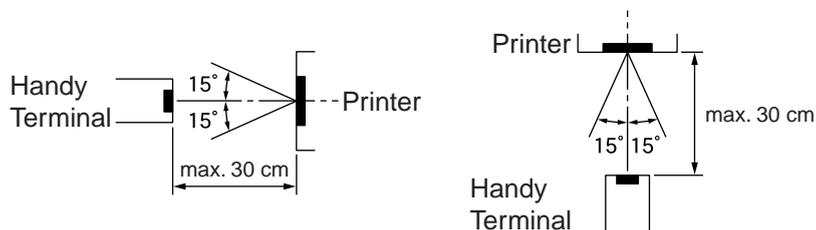
1. Turn on the printer.

   NOTE: *Firmly slide the power switch to the position "ON" or "OFF" until it clicks. If you slide the power switch in halfway, the printer may not judge the power ON/OFF status.*

2. Send data from the handy terminal to the printer. (Regarding the operation of the handy terminal, please refer to the handy terminal's operating manual.)
   (Radio Communication Sample)
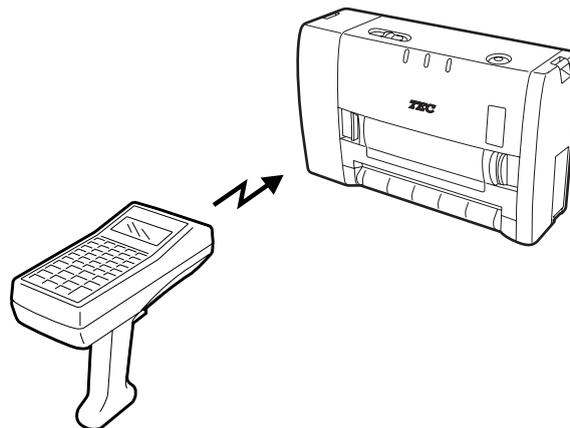
Fig. 8-1

3. Issuing labels
   1) The number of labels is specified when issuing labels in batch mode. To re-issue the label, press the **[FEED]** button.

      This operation differs, depending on the print mode.
   2) The printer prints labels one by one in strip mode by pressing the **[FEED]** button. To issue more than one label, remove the printed label before issuing the next one.

      This operation differs, depending on the print mode.

      NOTE: *Trim off the backing paper coming from the backing paper outlet.*
   3) After printing the receipt, press the **[FEED]** button to feed it to a position where it can be easily cut. Each time the **[FEED]** button is pressed, the receipt is fed for 20 mm.

4. Tear off the printed media upward or downward with the cutter.

   NOTE: *Do not pull the media out of the printer, as this will misalign the print position of the next label.*
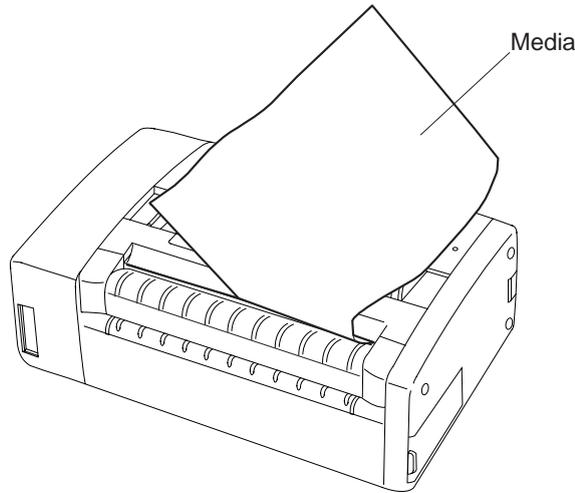
Media

Fig. 8-2

9. SELF-DIAGNOSTIC TEST PRINT

1. Turn the power on while pressing the **[FEED]** button. Three LED lamps light up. After about 5 seconds, they extinguish, then the first label of the test print is issued.

   For GH24 and GH34 models

   ```
   PROGRAM VERSION   FMRM0072201 V2.0 2800 (FONT:0200)(BOOT:A900)
   PRINTER ID        00123
   FORM VERSION      0000000000 0000000000 0000000000 0000000000
   SRAM CHECK        512KB
   SENSOR CHECK      R:2.9V T:0.5V P:1.9V H:+25°C A:+25°C
   BATTERY LEVEL     8.3V (OVER 220 LABELS)
   TONE ADJUST       +00       PARAMETER     [B-415] [PC-850] [0]
   FEED ADJUST       +0.0mm  MODEL NAME    B-415-GH Series
   HEAD CHECK        OK
   PEEL THRESHOLD    2.0V
   PRINT MODE        TPCL-LE
   SERIAL NO.        3S000001
   IrDA              IrCOMM
   ```

   For GH25 model

   ```
   PROGRAM VERSION   FMRM0072002 V2.0 2800 (FONT:0200)(BOOT:A900)
   PRINTER ID        00123
   FORM VERSION      0000000000 0000000000 0000000000 0000000000
   SRAM CHECK        512KB
   SENSOR CHECK      R:2.9V T:0.5V P:1.9V H:+25°C A:+25°C
   BATTERY LEVEL     8.3V (OVER 220 LABELS)
   TONE ADJUST       +00       PARAMETER     [B-415] [PC-850] [0]
   FEED ADJUST       +0.0mm  MODEL NAME    B-415-GH Series
   HEAD CHECK        OK
   PEEL THRESHOLD    2.0V
   PRINT MODE        TPCL-LE
   SERIAL NO.        3S000001
   IrDA              IrCOMM
   ```

   0 0 0 1 c c 4 0 8 4 f d

2. Pressing the **[FEED]** button again issues the second label of the test print. Pressing the **[FEED]** button once more, issues the second label of the test print again.
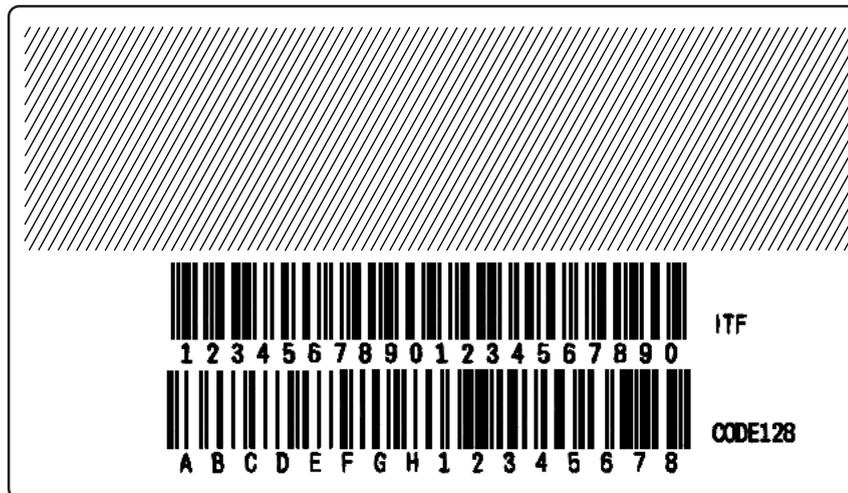
3. Regarding the print contents refer to the specifications.

10. CARE/HANDLING OF THE MEDIA

> ***CAUTION:***
> *Be sure to read carefully and understand the Supply Manual. Use only media which meets the specified requirements. Use of non-specified media may shorten the head life and result in problems with bar code readability or print quality. All media should be handled with care to avoid any damage to the media or printer. Read the following guideline carefully.*

- Do not store the media for longer than the manufactures recommended shelf life.

- Store media rolls on the flat end, do not store them on the curved sides as this might flatten that side causing erratic media advance and poor print quality.

- Store the media in plastic bags and always reseal after opening. Unprotected media can get dirty and the extra abrasion from the dust and dirt particles will shorten the print head life.

- Store the media in a cool, dry place. Avoid areas where they would be exposed to direct sunlight, high temperature, high humidity, dust or gas.

- The specifications for the thermal paper used for direct thermal printing must not exceed Ca^{++} 800 ppm, Na^+ 800 ppm, K^+ 800 ppm and CL^- 600 ppm.

- Some ink used on pre-printed labels may contain components which shorten the print head's product life. Do not use labels pre-printed with ink which contains hard substances such as carbonic calcium ($CaCO_3$) and kaolin (Al_2O_3, $2SiO_2$, $2H_2O$).

For further information please contact your local distributor or your media manufacturer.

11. GENERAL MAINTENANCE

WARNING!

1.   *Be sure to turn off the printer prior to performing any maintenance.*
2.   *Do not use any tool that may damage the print head.*
3.   *DO NOT POUR WATER directly onto the printer.*

11.1 Cleaning

To help retain the high quality and performance of your printer it should be regularly cleaned. The greater the usage of the printer, the more frequent the cleaning. (i.e. low usage = weekly: high usage = daily).

1.   Turn off the printer.
2.   Open the media cover.
3.   Remove the media roll from the printer.
4.   Clean the print head element with the print head cleaner.
5.   Wipe the cutter platen and strip roller with a soft cloth moistened with alcohol. Remove dust or foreign substances from the internal parts of the printer, if any.
6.   Remove paper particles or stains from the feed gap sensor, black mark sensor, and the strip sensor with a soft cloth.

NOTE: *Be sure to use the provided print head cleaner. Please order it to your authorized TOSHIBA TEC representative if necessary.*
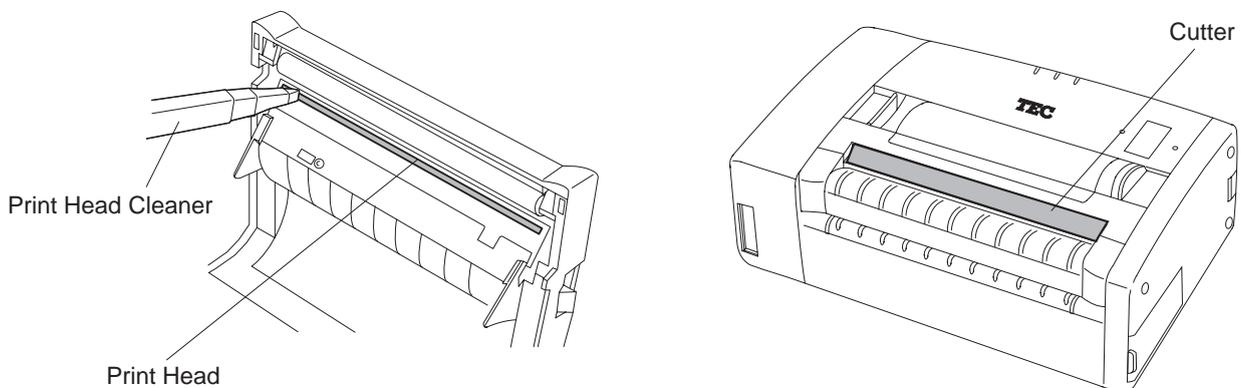

Print Head Cleaner

Print Head

Cutter

Fig. 11-1

Black Mark Sensor

Strip Roller

Strip Sensor
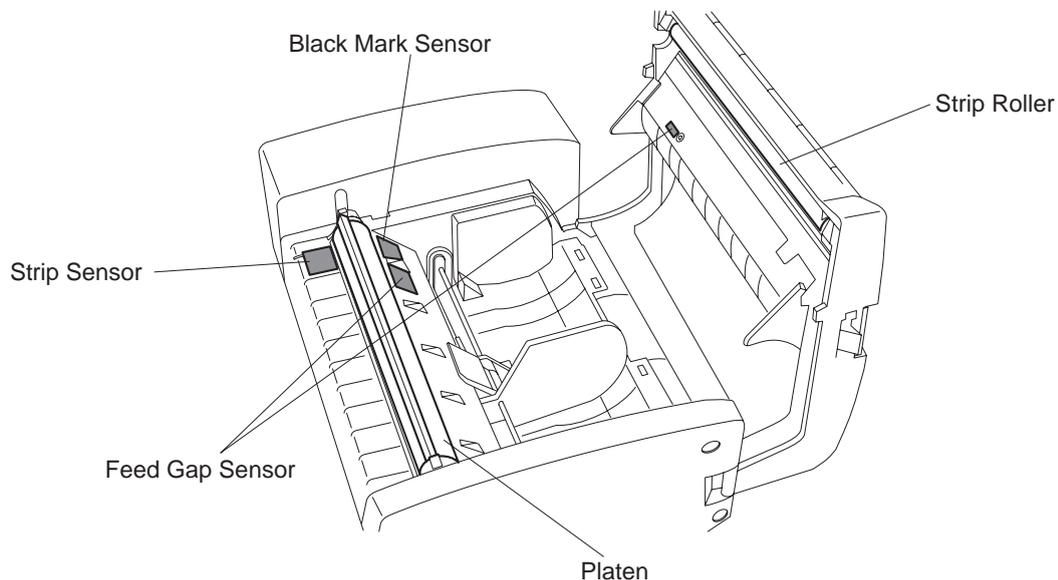
Feed Gap Sensor

Platen

Fig. 11-2

11.2 Covers and Operation Panel

The covers should be cleaned by wiping with a dry cloth or a cloth slightly dampened with a mild detergent solution.

NOTE: *Clean the printer cover with an electrostatic free cleaner for automated office equipment.*

CAUTIONS:
1. *DO NOT POUR WATER directly onto the printer.*
2. *DO NOT APPLY cleaner or detergent directly onto any cover or panel.*
3. *NEVER USE THINNER OR OTHER VOLATILE SOLVENT on the plastic covers.*
4. *DO NOT clean the covers or the operation panel with alcohol as it may cause them to discolor, loose their shape or develop structural weakness.*

11.3 Removing Jammed Media

1.   Turn off the printer.
2.   Open the media cover.
3.   Remove the media roll from the printer.
4.   Remove the jammed media.

NOTE: *DO NOT USE any sharp implements or tools as these could damage the printer.*

5.   Clean the print head and platen, then remove any further dust or foreign substances.

12. LED DISPLAY AND TROUBLESHOOTING

WARNING!
If you cannot solve a problem with the following solutions, do not attempt to repair the printer yourself. Turn off the printer, then contact your authorized TOSHIBA TEC representative for assistance.

When a problem occurs during operation, the LED indicator will blink or stay on continuously. Refer to the following troubleshooting guide and take corrective action.

○:LED off, ●:LED on, ☼:LED blinking

Printer Status	LED Display			Condition to clear the ERROR Status
	PRINT	ERROR	BATTERY	
When the power is turned on.	● → ○ (2 or 3 seconds)	● → ○ (2 or 3 seconds)	● → ○ (2 or 3 seconds)	
Normal Condition	○	○	○	
While the cover is open.	○	○	○	
Command Error	○	☼	○	Close the cover
Feed jam	○	☼	○	Close the cover after installing a label.
Label End	○	☼	○	Close the cover after installing a label.
Cover Open Error	○	☼	○	Close the cover
Thermal Head Disconnection Error	○	☼	○	(See NOTE)
Thermal Head Abnormal High Temperature	○	☼	○	Stop issuing labels for a while.
Flash ROM Data Writing Error	○	☼	○	(See NOTE)
Flash ROM Data Erasing Error	○	☼	○	(See NOTE)
Low-battery	○	○	●	Replace the battery, or charge the battery.
In action	●	○	○	
Communication Error	○	☼	○	Close the cover
Normal Termination and Label End	○	☼	○	Close the cover after installing a label.
Form entry area in the flash ROM becomes full.	○	☼	○	Form Entry, Area Format
Normal Termination	○	○	○	
Battery Life Error	○	○	☼ → ○ (3 sec.)	Replace the battery.

* LED flashing repeats ON and OFF at the interval of 0.1 sec.
* When the printer goes into energy-saving mode, the LED will be extinguished to save energy. However, when normal operation mode is resumed, the LED will flicker or illuminate again.
* If the printer status changes during an error, the LED display will also change to indicate the latest status of the printer.

NOTE: *Please contact your authorized TOSHIBA TEC representative.*

13. ERROR PROCESS

When the printer detects the errors shown below, it will make the ERROR LED flashing (repeat of ON and OFF at the interval of 0.1 sec.), and wait for a command sent from the host after stopping the performance. Since the restart process is not performed after clearing the error, it is necessary to send the command again.

(1) Command Error
  1. When one of the following errors is found during the command analysis.
     • Error of command length
     • Error of command transmission sequence
     • Error of command format
     • Error of parameter designation
  2. If the form No. designated by the data print command has not been entered.

(2) Feed Jam (Paper Feeding Error)
  If the printer fails to detect the gap after feeding a label 1.5 times as long as the label pitch desig-nated by the label size setting command. (Only when the feed gap sensor/black mark sensor are designated.)

(3) Label End
  1. If an attempt is made to issue or feed a label when the media has run out.
  2. If the printer detects the backing paper continually 18 mm during label issue or feed.
  3. If the printer detects the label end detection level continually 1 mm during label issue or feed.

(4) Cover Open Error
  1. If the printer detects the cover open continually 5 mm during label issue or feed.
  2. If label issue or feed is attempted while the cover is open.

(5) Thermal Head Disconnection Error
  1. If an open element is detected during the automatic missing dot check. This is performed when the power is turned on, or the cover is closed.
  2. If an error occurs in the thermal head driver.

(6) Thermal Head Abnormal High Temperature Error
  If the thermistor of the thermal head detects high temperature.

(7) Flash ROM Data Writing Error
  If an error occurs when the data regarding various entries, etc. is written into the flash ROM.

(8) Flash ROM Data Erasing Error
  If an error occurs when the flash ROM is initialized (data erasing).

(9) Normal Termination and Label End
  1. If the printer detects the backing paper continually 18 mm after printing the effective print area.
  2. If the printer detects the label end detection level continually 1 mm after printing the effective print area.

(10) Form Entry Area Full in the Flash ROM
  When the form entry area in the flash ROM becomes full.
  When the data of 4 KB or more is sent when the form entry is performed while the form No. "00" is designated.

The BATTERY LED is illuminated to indicate that printing is impossible due to low-voltage. It flashes for 3 sec. (repeat of ON and OFF at the interval of 0.1 sec.) when the battery life error has been detected. (The battery life error is not detected unless the printer stays in the idle state for several sec.) However, the performance of the printer is normal even in the battery life error.

When the indefinite order execution error occurs, the printer will be automatically reset.

TEC
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